



March 22, 2013

*Via Electronic and Certified U.S. Mail*

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*Re: Comments of the Sierra Club on Draft WPDES Permit No. WI-0000965-09-0 for  
WPSC's Pulliam Power Plant, Green Bay, Wisconsin*

Dear Mr. Ostenso:

Please accept the following comments, prepared and submitted on behalf of the Sierra Club and its members, on Draft WPDES Permit No. WI-0000965-09-0 ("Draft Permit"), proposed to be issued to Wisconsin Public Service Corporation for its Pulliam Power Plant on Bylsby Ave., Green Bay, Wisconsin. We appreciate the opportunity to submit these comments, and look forward to the Department's response.

**I. WDNR's § 316(b) Analysis for the Pulliam Station is Flawed**

**A. Background on CWA § 316(b) Requirements**

Section 316(b) of the Clean Water Act ("CWA") requires that any standards or limitations applicable to a point source under CWA § 301 "require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact." 33 U.S.C. § 1326(b). This standard is known as "BTA." The requirement of CWA § 316(b) is mirrored in Wisconsin law at Wis. Stat. § 283.31(6).

As DNR is aware, EPA promulgated its "Phase II" § 316(b) rule in 2004, establishing categorical BTA requirements for large, existing power plants. *See* 69 Fed. Reg. 41,576 (July 9, 2004). That rule was remanded by the Second Circuit in *Riverkeeper*,

*Inc. v. United States EPA*, 475 F.3d 83, 130-131 (2d Cir. 2007), and a new rule is expected in mid-2013 and has not yet been promulgated by EPA.

Following the Second Circuit's decision in *Riverkeeper*, EPA suspended the Phase II rule, but in so doing it emphasized that NPDES permitting authorities were still required to establish BTA permit conditions on a case-by-case basis, using their best professional judgment ("BPJ") in lieu of nationally applicable standards.<sup>1</sup> As EPA explained at the time:

Notably, EPA by this action is not suspending 40 C.F.R. 125.90(b). This retains the requirement that permitting authorities develop BPJ controls for existing facility cooling water intake structures that reflect the best technology available for minimizing environmental impact. This provision directs permitting authorities to establish section 316(b) requirements on a BPJ basis for existing facilities not subject to categorical section 316(b) regulations. Establishing requirements in this manner is consistent with the CWA, case law, and the March 20, 2007 memorandum's direction to do so.

72 Fed. Reg. at 37,108. This obligation is further confirmed by the regulation cited by EPA in its federal register notice withdrawing the Phase II rule:

Existing facilities that are not subject to requirements under this or another subpart of this part must meet requirements under section 316(b) of the CWA determined by the Director on a case-by-case, best professional judgment (BPJ) basis.

40 C.F.R. § 125.90(b). Even though a revised Phase II has been proposed by EPA, it has not been issued and is not expected to be issued until mid-2013.<sup>2</sup>

DNR is well aware of this obligation. DNR's own Guidance for Evaluating Intake Structures Using Best Professional Judgment<sup>3</sup> ("§ 316(b) Guidance") states that

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<sup>1</sup> See EPA, National Pollutant Discharge Elimination System—Suspension of Regulations Establishing Requirements for Cooling Water Intake Structures at Phase II Existing Facilities, 72 Fed. Reg. 37,107 (July 9, 2007); Memorandum from Benjamin Grumbles, Assistant Administrator, to Regional Administrators (March 20, 2007), *available at* [http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/phase2/upload/2007\\_07\\_19\\_316b\\_phase2\\_implementation-200703.pdf](http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/phase2/upload/2007_07_19_316b_phase2_implementation-200703.pdf).

<sup>2</sup> See EPA, Cooling Water Intake Structures—CWA § 136(b), at <http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/index.cfm>.

EPA staff have been clear that “if a facility has a cooling water intake structure, [DNR] must address potential 316(b) issues during the permitting process.”<sup>4</sup>

B. Specific Flaws with DNR’s § 316(b) Analysis for the Pulliam Plant

Pulliam has two cooling water intake structures (“CWIS”): the primary CWIS is located in a former boat slip on the west bank of the lower Fox River a few hundred meters south of the confluence with Green Bay (the “Fox River CWIS”) and the other located in a cove on Green Bay itself, just north of the plant (the “Green Bay CWIS”).

In its CWA § 316(b) analysis (“Intake Evaluation”) for the Pulliam Plant,<sup>5</sup> WDNR has concluded that:

Based on the barrier net system preventing 86% to 90% of the fish from passing to the intake forebay during spring, summer and fall months from the Lower Fox River, and the lack of any currently known significant impacts of the Pulliam Generating Station’s intake on the aquatic life of the Lower Fox River, the Pulliam Plant meets the BTA requirements of s. 283.31, Wis. Stats.

DNR’s conclusion, and the bases for it, are flawed, as described below.

*(1) DNR’s § 316(b) analysis for the Pulliam Plant is flawed because DNR failed to assess the impacts of Pulliam’s Fox River intake structure on the aquatic environment, including Green Bay.*

DNR based its § 316(b) BPJ determination in part upon “the lack of any currently known significant impacts of the Pulliam Generating Station’s intake on the aquatic life of the Lower Fox River.”<sup>6</sup> This basis for the BPJ determination is flawed because DNR

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<sup>3</sup> DNR, Guidance for Evaluating Intake Structures Using Best Professional Judgment (BPJ), (February 2, 2009) [3400-2008-04] (hereinafter, “§316(b) Guidance”).

<sup>4</sup> *Id.* at 4. DNR’s statement in the Pulliam Fact Sheet at page 3, section 1.3, that EPA’s still-pending revised Phase II rules “precludes incorporation [of] new requirements at this time” is therefore incorrect.

<sup>5</sup> WDNR Memorandum, Lower Fox River Intake Structure Evaluation, Pulliam Fact Sheet Attachment I (hereinafter, “Intake Evaluation”).

<sup>6</sup> Intake Evaluation at 27.

may not merely claim a lack of information as part of its § 316(b) analysis; rather, it has an affirmative obligation to gather and consider the best data available concerning the intake structure and the affected waters. As DNR's § 316(b) Guidance states:<sup>7</sup>

In addition to technology-based BPJ evaluations applicable to permittees based on their industrial category, it is also important that Department staff evaluate whether site-specific water quality impacts are occurring because of the location, design, or operation of the intake. These evaluations are important, as they could determine whether a more detailed BPJ review is necessary and/or the need for new or improved technologies. Regional staff, knowledgeable about local aquatic life and water quality conditions, should evaluate the receiving water in the area under the influence of the intake structure to determine whether impacts are occurring prior to permit reissuance.

Thus, prior to issuing the final permit, DNR must “evaluate whether site-specific water quality impacts are occurring” due to the Fox River intake structure and actually “determine whether impacts are occurring,” not merely rely on a purported lack of data.

*(2) DNR's § 316(b) analysis for the Pulliam Plant is flawed because available data show that the Fox River intake structure has a significant adverse impact on the aquatic life of Green Bay.*

Notwithstanding DNR's failure, described above, to evaluate the impacts of Pulliam's CWIS, there actually exist (and DNR is aware of) both (a) impingement and entrainment data for the Pulliam Plant, and (b) data regarding the condition of the commercial and sport fisheries in the Lower Fox River and Green Bay.<sup>8</sup> Thus, DNR's conclusion that there is a “lack of any currently known significant impacts of the Pulliam Generating Station's intake on the aquatic life” of the receiving waters is incorrect.<sup>9</sup>

Impingement and entrainment of aquatic species is, in and of itself, adverse environmental impact (“AEI”) that must be minimized under § 316(b). EPA interprets “the entrainment and impingement of aquatic organisms to constitute AEI, without requiring a demonstration of broader-scale harm to populations of particular species or

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<sup>7</sup> § 316(b) Guidance at 4.

<sup>8</sup>Pulliam's Fox River intake structure, as DNR is well aware, is located a mere few hundred meters upstream of the river's confluence with Green Bay, and there is no rational basis to avoid consideration of the intake structure's impact on the aquatic life of Green Bay.

<sup>9</sup> Intake Evaluation at 27.

particular communities of organisms.”<sup>10</sup> Thus, in both its Phase I and Phase II § 316(b) rules, “EPA has interpreted the statutory directive of section 316(b) to minimize ‘adverse environmental impact’ (‘AEI’) to require the reduction of ‘the number of aquatic organisms lost as a result of water withdrawals associated’ with cooling water intake structures.”<sup>11</sup> For this reason alone, DNR cannot rely on a purported lack of data regarding the impacts of impingement and entrainment at Pulliam’s CWIS as the basis for concluding that the technology currently deployed at Pulliam represents BTA.

But more importantly, there is actually an abundance of data available to DNR indicating that the Pulliam Plant’s Fox River CWIS is, in fact, having a significant adverse impact on the aquatic life of the Lower Fox River, as well as the aquatic life of Green Bay. Some of those data are discussed by DNR in its analysis. For example, DNR notes that the Fox River CWIS impinges 1,274,750 fish annually, with the three predominant species being gizzard shad (83.5% or 1,064,416 fish annually), yellow perch (9.2% or 117,277 fish annually), and white perch (2.4% or 30,594 fish annually).<sup>12</sup>

DNR itself recognizes that the Lake Michigan population of yellow perch has been in critical decline for some time. As one study relied upon by DNR notes, “[b]efore 1997, yellow perch (*Perca flavescens*) was one of the most important, commercially fished species in Lake Michigan and contributed as much as 85% of the recreational harvest by number.”<sup>13</sup> Recent declines have led to “strict harvest regulations on the recreational fishery and a moratorium on commercial fishing in Lake Michigan, although a limited commercial fishery remains active in Wisconsin waters of Green Bay.”<sup>14</sup> Studies indicate that yellow perch do not travel far distances; that a high percentage of yellow perch in Green Bay return to the identical or nearby spawning

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<sup>10</sup> EPA, Clean Water Act NPDES Permitting Determinations for the Thermal Discharge and Cooling Water Intake Structures at Merrimack Station in Bow, New Hampshire at 230-31, available at <http://www.epa.gov/region1/npdes/merrimackstation/index.html> (hereinafter, “Merrimack Station § 316(b) Determination”).

<sup>11</sup> *Riverkeeper II*, 475 F.3d 83, 123–24 (citing 69 Fed. Reg. at 41,586).

<sup>12</sup> Intake Evaluation at 26.

<sup>13</sup> Glover, David C., John M. Dettmers, David H. Wahl, and David F. Clapp. “Yellow perch (*Perca flavescens*) stock structure in Lake Michigan: an analysis using mark-recapture data.” Available at <http://dnr.wi.gov/topic/fishing/Documents/LakeMichigan/Glover2008.pdf>.

<sup>14</sup> *Id.*

grounds in subsequent spawning seasons; and that the Green Bay population is “genetically distinct” from populations in Northern and Southern Lake Michigan.<sup>15</sup>

The 117,277 yellow perch estimated to be impinged (and presumed to be killed) annually by Pulliam’s Fox River CWIS represents 82.8% of the 2011 total Green Bay commercial yellow perch harvest of 141,651 fish.<sup>16</sup> Additionally, at an average of .34 pounds per fish<sup>17</sup> it represents approximately 40% of the total allowable commercial harvest of 100,000 pounds. These are significant numbers: if the impingement of yellow perch by the Fox River CWIS was eliminated, it would likely have a hugely beneficial effect on the yellow perch population in Green Bay.

In its analysis, DNR merely notes that “the yellow perch is a very important fish species to the fishery” and that the “estimated 117,000 yellow perch impinged at this one location during the 2005-2006 study period is cause for concern.”<sup>18</sup> DNR must go further before issuing the permit, and actually minimize the adverse environmental impact by requiring Pulliam to use the best available technology for reducing impingement and entrainment.

(3) *DNR’s § 316(b) analysis for the Pulliam Plant is flawed because DNR inappropriately relied upon “past efforts to consider alternatives for reducing fish impingement and aquatic life entrainment.”*

DNR’s conclusion that Fox River CWIS represents BTA is based, in part, upon what DNR describes as “past efforts to consider alternatives for reducing fish impingement and aquatic life entrainment.”<sup>19</sup> DNR does not specifically identify what

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<sup>15</sup> *Id.*; see also *id.* at 1924 (finding that “[d]uring summer, 90% dispersal distance from GB-1 [sample location located in Green Bay] was 28.7 km, which remained within the Wisconsin waters of Green Bay”); *id.* at 1926-27 (noting high rate of return to same or nearby spawning grounds).

<sup>16</sup> Wisconsin Department of Natural Resources, Lake Michigan Management Reports – 2012 at 17, available at <http://dnr.wi.gov/topic/Fishing/Documents/LakeMichigan/GLFCReport2012.pdf>.

<sup>17</sup> Derived from 2011’s total Green Bay commercial harvest of 49,465 pounds and 141,651 fish. See *id.*

<sup>18</sup> Intake Evaluation at 26.

<sup>19</sup> *Id.*

“alternatives” were considered in the past, but this is presumably are reference to those technologies (including the current barrier net system) included the § 316(b) studies “completed by WPSC in the 1970’s.”<sup>20</sup> Whatever this is referring to, DNR cannot rely on “past efforts” (especially efforts that are over thirty years old) but rather must make a *current* effort to consider alternatives, as further detailed below.

*(4) DNR’s § 316(b) analysis for the Pulliam Plant is flawed because DNR did not actually consider any “available technologies” other than the existing CWIS*

It is axiomatic that, as part of a rational process to consider whether a specific CWIS technology currently deployed at a plant is the “best technology available for minimizing adverse environmental impacts,” a permitting agency would have to consider *other* available technologies and determine whether those technologies were (a) better or worse than the technology currently used, and (b) “available” for use at the particular plant in question. EPA’s Merrimack Station § 316(b) Analysis provides a narrative description of how this should occur:

When determining the BTA for existing facilities, such as Merrimack Station, EPA must, of course, evaluate whether technologies may be available for *retrofitting* to existing plants. In this regard, EPA will look to technologies that have been retrofitted to existing facilities in the past. EPA could also look at technologies used at new facilities to the extent that their use was instructive about what could be retrofitted to existing plants. In addition, when making a BTA determination under CWA § 316(b) on a case-by-case, BPJ basis, EPA ultimately must also consider whether a particular technology is feasible for use at the specific facility in question given the facts of that case. For example, while the fact that a technology works at a particular power plant might generally suggest that it could also work at Merrimack Station, the technology might not actually be feasible for Merrimack Station due to site-specific issues such as, for example, space limitations. A technology that is not actually feasible for a facility could not be the BTA for that facility.<sup>21</sup>

It appears from the permit record that Pulliam’s December 2008 CWIS Study, and in turn DNR’s § 316(b) analysis, only considered the existing technology at the Fox River CWIS.<sup>22</sup> That is, DNR only considered the current use of barrier nets (on a

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<sup>20</sup> *Id.* at 24.

<sup>21</sup> *Id.* at 28-29.

<sup>22</sup> *Id.* at 25-27.

seasonal basis) coupled with existing 3/8-inch mesh traveling screens at unit's individual intake, and did not assess whether any other available technologies were better at "minimizing adverse environmental impacts" than the current technology.

DNR can hardly dispute that there exist technologies that are better at "minimizing adverse environmental impacts" than the technologies in place at Pulliam. DNR has recently considered alternative technologies in the context of other power plant § 316(b) determinations.<sup>23</sup> A number of existing, available technologies have been identified by EPA.<sup>24</sup> DNR must consider these technologies, determine their relative performance at minimizing adverse environmental impact as compared to the technology currently deployed at the Fox River CWIS, and determine which of those technologies are "available" for use at the Pulliam Plant.

*(5) DNR did not conduct a § 316(b) analysis of, or make a BPJ determination regarding, Pulliam's Green Bay intake structure, so that structure may not be used by Pulliam.*

DNR's § 316(b) analysis refers in passing to Pulliam's northern intake structure, located on Green Bay, and notes that the structure is not currently in use and is not anticipated to be used by Pulliam during this permit cycle for various reasons.<sup>25</sup> Thus DNR's analysis and BTA determination "focuses on the Fox River intake structure"<sup>26</sup> and the analysis includes no further discussion of (including any BTA determination relevant to) the Green Bay structure. There is therefore no basis for DNR's conclusion in Section 1.3 of the Draft Permit "that the intake structures [plural] meet the requirements of s. 283.31(6), Wis. Stats." Moreover, the Draft Permit at Section 1.1

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<sup>23</sup> See, e.g., WE Energies – Valley Power Plant Water Intake Structure BTA Determination at 3 (noting that "13 alternative technologies for the water intake" were evaluated for the Valley Power Plant.); Fact Sheet, Wisconsin Electric Power Company – Oak Creek Power Plant and Elm Road Generating Station at 4-5 (considering a number of "available systems and devices [that] fall into one of four technological categories depending on their mode of action" as part of the Oak Creek/ERGS § 316(b) analysis).

<sup>24</sup> See generally EPA, Technical Development Document for the Proposed Section 316(b) Phase II Existing Facilities Rule (March 28, 2011), available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/upload/technicaldevelopment.pdf>; see also Merrimack Station § 316(b) Analysis at 242-309.

<sup>25</sup> Intake Evaluation at 23-24.

<sup>26</sup> *Id.*



authorizes Pulliam to use the Green Bay intake structure without DNR undertaking a BPJ analysis.

Either DNR's § 316(b) Analysis must be revised to actually consider whether the Green Bay intake structure meets § 316(b) requirements, or the Draft Permit must be revised to explicitly prohibit the use of that intake structure.

## **II. WDNR Failed to Ensure that Pulliam's Discharges Meet the Best Available Technology Economically Achievable ("BAT") Standard of Treatment Required by CWA § 301(b).**

All NPDES permits (including state-issued permits) must ensure compliance with the substantive requirements of the CWA, including limitations based on minimum levels of technology as required by section 301 of the CWA. 33 U.S.C. §§ 1311, 1342(a). After 1989, these limitations must reflect the best available technology economically achievable ("BAT") for nonconventional and toxic pollutants, and the best conventional pollutant control technology ("BCT") for the five conventional pollutants. 33 U.S.C. § 1311(b)(2)(A) and (E). Application of BAT/BCT must be reflected in an NPDES permit through the imposition of technology-based effluent limitations ("TBELs"). 33 U.S.C. § 1342(a)(1); 40 C.F.R. §§ 122.44(a)(1), 125.3(a). To facilitate this process, EPA is required to promulgate nationally applicable effluent limitation guidelines ("ELGs") for specific categories and classes of point sources. 33 U.S.C. § 1314(b)(2). Where promulgated ELGs are not applicable to a given discharger or a given pollutant, permitting agencies must still ensure the requirements of section 301 are achieved; this is done on a case-by-case basis through the application of the agency's best professional judgment ("BPJ"). *See* 33 U.S.C. § 1342(a)(1).

Permit drafters must establish TBELs "on a case-by-case basis . . . to the extent that EPA-promulgated effluent limitations are inapplicable." 40 C.F.R. § 125.3(c)(2). "Where promulgated effluent limitation guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis in order to carry out the provisions of the [CWA]." *Id.* § 125.3(c)(3).<sup>27</sup>

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<sup>27</sup> *See also* U.S. EPA, *NPDES Permit Writers' Manual* 5-45 (2010), available at <http://cfpub.epa.gov/npdes/writermanual.cfm> (hereinafter, "Permit Writers' Manual") (explaining how to establish TBELs on a case-by-case basis).

EPA last revised its ELGs for coal-fired power plants in 1982. *See generally Effluent Limitation Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, 40 C.F.R. Part 423 (“Part 423 ELGs”).<sup>28</sup> EPA has recently found that the now 30-year-old Part 423 ELGs are outdated, did not address or consider a number of pollutants or waste streams now known to be a common part of coal plant effluent, and has announced its intent to revise them. Specifically, EPA has explained:

EPA’s decision to revise the current effluent guidelines is largely driven by the high level of toxic-weighted pollutant discharges from power plants and the expectation that these discharges will increase significantly in the next few years as new air pollution controls are installed. Over the course of the study EPA has identified technologies that are available to significantly reduce these pollutant discharges. . . . EPA’s review of the wastewater characteristics indicates that most of the toxic pollutant loadings for this category are associated with metals and certain EPA’s review of the wastewater characteristics indicates that most of the toxic pollutant loadings for this category are associated with metals and certain low-volume wastes.<sup>29</sup>

The BPJ analysis described above applies to all of the Pulliam Plant’s discharges and effluent streams; however, two effluents are deserving of special attention: discharges of priority pollutants (including toxic metals) from the JDY Plant’s ash transport water and coal pile runoff, and discharges of heat from the plant’s antiquated once-through cooling system.

A. WDNR Must Conduct a BPJ Analysis for Pulliam’s Discharges of Bottom Ash Transport Water and Coal Pile Runoff.

EPA has found that “[f]ly ash and bottom ash transport waters typically contain heavy metals, including priority pollutants.”<sup>30</sup> Even though the concentration of metals and other pollutants in bottom ash transport water is likely to vary from plant to plant, in recent studies EPA identified significant concentrations of aluminum, arsenic,

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<sup>28</sup> *See also* 47 Fed. Reg. 52,290 (Nov. 19, 1982) (Part 423 ELG rulemaking).

<sup>29</sup> EPA, Notice of Availability of Preliminary 2010 Effluent Guidelines Program Plan, 74 Fed. Reg. 68,599, 68,606 (December 28, 2009).

<sup>30</sup> EPA, Steam Electric Power Generating Point Source Category: Final Detailed Study Report (October 2009) at 3-15, *available at* [http://water.epa.gov/lawsregs/guidance/cwa/304m/archive/upload/2009\\_10\\_26\\_guide\\_steam\\_finalreport.pdf](http://water.epa.gov/lawsregs/guidance/cwa/304m/archive/upload/2009_10_26_guide_steam_finalreport.pdf).

barium, boron, iron, magnesium, manganese, mercury, titanium, and zinc in these discharges.<sup>31</sup>

EPA has also found that coal pile runoff is a significant source of pollutants at coal-fired power plants:

Coal pile runoff is typically acidic due to the oxidation of iron sulfide, which produces sulfuric acid, and ferric hydroxide or ferric sulfate. Coal pile runoff may contain high concentrations of copper, iron, aluminum, nickel, and other constituents present in coal.<sup>32</sup>

But in the current Part 423 ELGs, EPA did not establish BAT limitations for pollutants contained in bottom ash transport water or coal pile runoff. Instead, EPA only included limitations based upon application of the best practicable control technology currently available (“BPT”) per CWA § 301(b)(1)(A), 33 U.S.C. § 1311(b)(1)(A). *See* 40 C.F.R. § 423.12(b)(4).<sup>33</sup> Thus, because the only applicable ELGs are insufficient and outdated, WDNR has an obligation to establish TBELs for the Pulliam Plant’s discharges of bottom ash transport water and coal pile runoff on a case-by-case basis pursuant to 40 C.F.R. § 125.3(c)(2).<sup>34</sup>

EPA has recently rejected the argument that setting TBELs for coal plant discharges -- including discharges of fly ash or bottom ash transport water, such as those discharged by Pulliam -- is infeasible before the revised Part 423 ELGs are

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<sup>31</sup> *Id.* at 5-7 to 5-10; *see also id.* at 5-11 (noting that “ash transport water streams contain significant concentrations of TSS and metals.”).

<sup>32</sup> *Id.* at 3-22 to 3-23.

<sup>33</sup> By design, BAT limitations are generally more stringent than BPT limitations because “in assessing BAT total cost is no longer to be considered in comparison to effluent reduction benefits.” *EPA v. Nat’l Crushed Stone Ass’n*, 449 U.S. 64, 71 (U.S. 1980).

<sup>34</sup> *See* Memorandum from James Hanlon, EPA Office of Wastewater Management, to Water Division Administrators (June 7, 2010) (hereinafter “Hanlon Memo”), *Attachment A: Technology-based Effluent Limits – Flue Gas Desulfurization (FGD) Wastewater at Steam Electric Facilities*, available at <http://www.epa.gov/npdes/pubs/hanlonccrmemo.pdf> (stating that “an authorized state must include technology-based effluent limitations in its permits for pollutants not addressed by the effluent guidelines for that industry . . . In the absence of an effluent guideline for those pollutants, the CWA requires permitting authorities to conduct the ‘BPT’ analysis discussed above on a case-by-case basis for those pollutants in each permit.”).

finalized, in two recent letters commenting on NPDES permits for coal plants in Tennessee.<sup>35</sup> In both cases the state permitting agency had determined that setting TBELs was infeasible, and in both cases the EPA disagreed.<sup>36</sup> The letters recommend that “monitoring only requirements for metals . . . be replaced with technology-based effluent limits (TBELs)[.]”<sup>37</sup>

Finally, EPA reiterated just a few months ago, in the course of reviewing eight NPDES permits for coal-fired steam electric facilities issued by the State of Maryland, that TBELs must be established on a BPJ-basis for discharges of fly ash and bottom ash transport water:

[T]he record for the 1982 effluent limitations guidelines indicates that BAT was not established for priority pollutants contained in fly ash or bottom ash transport water in the final rule. These waters often combine with FGD wastewater and flow through, and eventually discharge, from [coal combustion residue] impoundments. Thus, BAT-based limitations would currently need to be established on a BPJ-basis for CCR-related discharges from sources such as FGD, fly ash or bottom ash transport water.<sup>38</sup>

EPA found fault with the Maryland permits because “it does not appear that the Maryland Department of the Environment (MDE) examined potential priority pollutants expected to be present in the discharge . . . in order to establish appropriate BPJ technology-based limitations as required by CWA § 301(a)(1) and applicable

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<sup>35</sup> Letter from Christopher B. Thomas, Chief, Pollution Control and Implementation Branch, Water Protection Division, EPA Region 4, to Paul E. Davis, Tennessee Department of Environmental Protection, regarding NPDES permit for Kingston Fossil Plant (Aug. 8, 2011) (hereinafter “Kingston NPDES Letter”), attached hereto as **Exhibit A**; Letter from Christopher B. Thomas, Chief, Pollution Control and Implementation Branch, Water Protection Division, EPA Region 4, to Paul E. Davis, Tennessee Department of Environmental Protection, regarding NPDES permit for Gallatin Fossil Plant (Aug. 11, 2011) (hereinafter “Gallatin NPDES Letter”), attached hereto as **Exhibit B**.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> Letter from James Hanlon, EPA Office of Wastewater Management, to Jennifer Peterson and Diana Dascalu-Joffe, Environmental Integrity Project, April 26, 2012 (hereinafter, “4/26/12 Hanlon Letter,” attached hereto as **Exhibit C**.

Federal regulations at 40 CFR 125.3 (applicable to State NPDES permit programs per 40 CFR 123.25").<sup>39</sup>

When setting TBELs based on its BPJ, WDNR is required to consider "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, and non-water quality environmental impact (including energy requirements)" among other appropriate factors. 33 U.S.C. § 1314(b)(2)(B); *see also* 40 C.F.R. § 125.3(d)(3). Moreover, these statutory factors "must be considered in all cases, regardless of whether the permit is being issued by EPA or an approved State." 40 C.F.R. § 125.3(c).

BPJ-derived TBELs for Pulliam's discharge of process wastewater, including ash transport water and coal pile runoff, would logically be imposed at outfall 101 (an internal sampling point for the process wastewater prior to mixing with Pulliam's condenser cooling water). However, WDNR appears not to have considered any of the BPJ factors identified above, and has not imposed the requisite BPJ-derived TBELs, in the Draft Permit. The only TBELs applicable to outfall 101 are for TSS and oil & grease (the included effluent limits for TSS applicable to outfall 101 actually appear to be the more stringent WQBELs derived from the Fox River TMDL).

While each facility is different, and Sierra Club cannot speculate regarding the outcome of a site-specific BPJ analysis that has yet to be conducted, EPA has recently conducted an in-depth BPJ analysis for the Merrimack Generating Station, a coal-fired power plant in New Hampshire, and concluded that "the combination of physical/chemical treatment with biological treatment and the polishing step (for removal of mercury) are components of BAT for that plant."<sup>40</sup> These technologies must, at a minimum, be considered by WDNR as part of its BPJ analysis for the Pulliam Plant, along with the other technologies reviewed by EPA for the Merrimack Station.

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<sup>39</sup> *Id.* at 2.

<sup>40</sup> U.S. EPA Region 1, Determination of Technology-Based Effluent Limits for the Flue Gas Desulfurization Wastewater at Merrimack Station in Bow, New Hampshire (September 23, 2011) (hereinafter "Merrimack BPJ Analysis") at 38, available at <http://www.epa.gov/region1/npdes/merrimackstation/index.html>.

### B. WDNR Must Conduct a BPJ Analysis for Pulliam's Discharges of Heat

The Pulliam plant operates a once-through cooling water system – the most antiquated of cooling systems in use today. WDNR notes that the bulk of the Pulliam Plant's discharges (up to 99% by volume) is comprised of once-through cooling water.<sup>41</sup> However, the Draft Permit lacks technology-based effluent limits for Pulliam's discharges of heat.

Like ash transport water described above, the current Part 423 ELGs do not include thermal effluent limitations, and were not intended to address discharges of heat.<sup>42</sup> The Draft Permit contains no TBEL for the Pulliam Plant's thermal discharges. The Pulliam Plant must either obtain a CWA § 316(a) variance or comply with effluent limitations for heat based on BAT, just like any other pollutant, and WDNR must include such a TBEL in the final permit. WDNR must develop that limit by considering the many available cooling system technologies available today as part of its BPJ analysis; EPA's Brayton Point and Merrimack Station NPDES permit records provides a useful starting point for this analysis.<sup>43</sup>

## III. The Temperature WQBELs Included In The Draft Permit Are Flawed

### A. WDNR's Calculated Mixing Zone for Pulliam's Thermal Discharges, and Therefore the Temperature WQBELs in the Draft Permit, are Flawed.

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<sup>41</sup> Pulliam Fact Sheet at 1.

<sup>42</sup> *In re Dominion Energy Brayton Point, LLC*, NPDES 03-12, 12 E.A.D. 490, 539 (February 1, 2006) (explaining that, because EPA "has never promulgated a thermal discharge ELG" for the steam electric point source category, permit drafters are "are required to establish BAT . . . on a case-by-case basis using BPJ under CWA § 402(a)(1)(B)."), available at [http://yosemite.epa.gov/oa/EAB\\_Web\\_Docket.nsf/Case~Name/9CF85A6AA39DF68C852571080052B146/\\$File/Dominion.pdf](http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Case~Name/9CF85A6AA39DF68C852571080052B146/$File/Dominion.pdf).

<sup>43</sup> See generally EPA, Clean Water Act NPDES Permitting Determinations for Thermal Discharge and Cooling Water Intake from Brayton Point Station in Somerset, MA (July 22, 2002), available at <http://www.epa.gov/region1/braytonpoint/index.html>; EPA, Clean Water Act NPDES Permitting Determinations for the Thermal Discharge and Cooling Water Intake Structures at Merrimack Station in Bow, New Hampshire at 230-31, available at <http://www.epa.gov/region1/npdes/merrimackstation/index.html>.

The temperature WQBELs included in the Draft Permit are based upon a mixing zone analysis that deviates from applicable regulatory requirements in several respects.

First, DNR incorrectly used the 3,125,000 square feet default mixing zone dimension applicable to Great Lakes shore discharges in Wis. Admin. Code § NR 106.55(7)(b).<sup>44</sup> Pulliam’s outfall 001 discharge is to the lower Fox River (or, at the most generous, a “Great Lakes harbor”) and therefore the maximum area allowed for the mixing zone under NR 106.55 is 15,708 square feet. *Id.*<sup>45</sup> Moreover, the “maximum area allowed” is just that—a “maximum” allowable mixing zone; the mixing zone is still “subject to all applicable portions of s. NR 102.05(3).” *Id.* It appears that DNR did not consider the requirements of NR 102.05(3), and given the location of Pulliam’s outfall it is likely that any such consideration would greatly reduce the size of the mixing zone.

Second, DNR impermissibly calculated a combined mixing zone for the Pulliam discharge and the discharge of the Green Bay Metropolitan Sewerage District (“GBMSD”) of 4,250,000 square feet, which is not explicitly authorized in NR 106.55 or any other regulation. WDNR is authorized to establish effluent limitations for multiple dischargers and to allocate the thermal load among them, *see* Wis. Stat. § 106.57, but this authority does not extend to combined mixing zones. WDNR is also authorized to include temperature WQBELs based upon a site-specific mixing zone analysis, but only if the permittee demonstrates that the requirements of NR 102.05(3) will be met, and as mentioned above there is no indication that Pulliam has made this demonstration or that DNR considered the factors included in NR 102.05. For example, DNR has clearly not limited the mixing zone to “as small an area as practicable,” or established a mixing zone that extends no more than “50% of the width” of the Fox River, or that DNR has taken “measures to prevent adverse synergistic effects” of Pulliam’s and GBMSD’s overlapping mixing zones. *See* Wis. Admin. Code § NR 102.05(3)(a), (c), (g).

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<sup>44</sup> WDNR, Permit Fact Sheet Attachment, Evaluation of Thermal Effluent Limitations for Green Bay Metropolitan Sewerage District and Wisconsin Public Service-Pulliam Power Plant at 51 (hereinafter, “Thermal Evaluation”).

<sup>45</sup> We note the obvious inconsistency between DNR’s consideration of only the “aquatic life of the Lower Fox River” (i.e., not Green Bay) as part of its Intake Evaluation, as discussed above, and its application of the default mixing zone size based on a “Great Lakes shore discharge” for purposes of calculating the temperature WQBEL. Pulliam’s Lower Fox River intake location and its Outfall 001 are separated by no more than 200 meters, and must be considered located on the same body of water.



Third, DNR inappropriately considered the “additional assimilative capacity” (in the form of lower temperatures) provided by the flow of the Fox River itself at the confluence with Green Bay as a means to further increase Pulliam’s temperature WQBEL.<sup>46</sup> As DNR itself notes, the Fox River “is not really a ‘WPDES permitted entity’”<sup>47</sup> and therefore it is inappropriate to consider, or “allocate” a certain temperature load to the Fox River “discharge.” This temperature load of the river may be appropriate to consider as part of a site specific mixing zone analysis under NR 106.55(10), but no such analysis has been prepared.

B. No Compliance Schedule for Temperature is Warranted.

The Draft Permit impermissibly includes a five-year compliance schedule for Pulliam to comply with the temperature WQBELs included in permit. The compliance schedule is not warranted, and immediate compliance with the (correctly calculated) temperature WQBELs should be required in the final permit.

Although NR 106.62 permits a temperature compliance schedule of up to the full five-year term of the permit, any temperature compliance schedule must still ensure that compliance with the final WQBEL is “attained as soon as reasonably possible.” Wis. Admin. Code §§ NR 106.62; NR 106.117(2). There is no indication in the permit record that supports DNR’s apparent conclusion that five years is the soonest Pulliam can comply with the temperature WQBELs included in the permit.

Moreover, as EPA has noted, to support the compliance schedule DNR must make “a reasonable finding, adequately supported by the administrative record,” that (a) the compliance schedule “will lead to compliance with an effluent limitation . . . by the end of the compliance schedule”; (b) the compliance schedule is “appropriate and that compliance with the final WQBEL is required as soon as possible”; and (c) the discharger “cannot immediately comply with the WQBEL upon the effective date of the permit.”<sup>48</sup> It appears these findings have not been made by DNR.

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<sup>46</sup> Thermal Evaluation at 60-64.

<sup>47</sup> *Id.* at 60.

<sup>48</sup> EPA, Memorandum from James A. Hanlon to Alexis Strauss, Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits (May 10, 2007), available at <http://water.epa.gov/lawsregs/guidance/wetlands/upload/signed-hanlon-memo.pdf>; see also 40 C.F.R. § 122.47.



Finally, it is apparent from the permit fact sheet and the Thermal Analysis that the purpose for the lengthy compliance schedule is to allow Pulliam time to update or complete its December 2010 thermal study and to request an alternative temperature WQBEL.<sup>49</sup> As EPA has informed DNR, this is not an allowable basis for including compliance schedules in permits.<sup>50</sup>

For these reasons the temperature compliance schedule is unjustified and the final permit for the Pulliam Plant should either (a) require immediate compliance with the temperature WQBELs, or (b) include a compliance schedule that is consistent with state and federal regulations and EPA guidance.

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For the foregoing reasons, Sierra Club requests that DNR revise the Draft WPDES Permit for the Pulliam Power Plant as described above prior to issuing a final permit.

Sincerely,

McGillivray Westerberg & Bender LLC



James N. Saul

*On behalf of Sierra Club*

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<sup>49</sup> See, e.g., Fact Sheet at 10 (noting that the compliance schedule included in the Draft Permit “reflects the permittee time table” for completing actions necessary to pursue “site specific or alternative limits” under applicable regulations).

<sup>50</sup> Letter from Susan Hedman, EPA Region 5, to Cathy Stepp, DNR Secretary (July 18, 2011), Enclosure at ¶ 15 (noting that DNR’s compliance schedule regulation at NR 106.117 is inconsistent with federal CWA regulations in part because it “allows time to be added to a schedule so a permittee can perform work intended to justify a change in an effluent limitation”).